REMARKS/ARGUMENTS

Claims 1-24 remain pending in the application. The Applicant hereby requests further examination and reconsideration of the application in view of these remarks.

Prior-Art Rejections

On pages 2-6 of the February 2, 2010, Office Action, the Examiner rejected claims 1-24 under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,904,462 to Sinha ("Sinha") in view of U.S. Pat. No. 7,046,665 to Walrand et al. ("Walrand"). The Applicant notes that the Office Action referred to Walrand as U.S. Pat. No. 7,046,655, which the Examiner, in a February 18, 2010 voicemail, confirmed was a typographical error. For the following reasons, the Applicant submits that all of the pending claims are allowable over the cited references.

Claims 1 and 17

In rejecting claim 1, the Examiner argued that the proposed combination of Sinha and Walrand would disclose all the elements of claim 1, including (1) "representing, in a network data structure, information associated with a mesh network ..., wherein the network data structure comprises, for each link in the network and each node or other link in the network, a representation of a minimum amount of protection bandwidth required to be reserved on said each link to restore service upon failure of said each node or other link," (2) "determining, using the network and service data structures, whether the new service requires additional protection bandwidth to be reserved on any link in the network," and (3) "updating the network data structure if any additional protection bandwidth is determined to be required for the new service." The Applicant submits that cited references do not teach these elements of claim 1.

Element (1)

The Examiner asserted that Sinha teaches this element in several sections allegedly disclosing "where existing protection path bandwidth is allocated to a protection links." The Applicant notes that the Examiner did not indicate what particular element of Sinha the Examiner believes allegedly corresponds to the claimed network data structure. The Applicant submits that, regardless, Sinha does not teach any element that corresponds to the claimed network data structure.

For a network having L links and N nodes, a corresponding network data structure would need to comprise, for each of the L links and each of the N nodes and L-1 other links in the

network, a representation of a minimum amount of protection bandwidth required to be reserved on said each of the L links to restore service upon failure of said each of the N nodes and L-1 other links. Consequently, the network data structure would need to be able to represent up to L*(N+L-1) different bandwidth data points.

The only vectors disclosed in Sinha are protection-link vectors, which, for a given link in a protection path, have elements corresponding to shared-risk groups (SRGs) in the network, where each element (a) corresponds to an SRG and (b) represents the amount of bandwidth allocated by the corresponding link to protect all working connections containing at least one link from that SRG (*see, e.g.*, Sinha at column 2, line 65 – column 3, line 5). These vectors do not (a) individually make up vectors of a network data structure or (b) in aggregate, make up a network data structure.

(a)

The recited network data structure comprises units corresponding to each link of the network, where each unit contains information corresponding to each node and each other link of the network. As noted above, a protection-link vector in Sinha contains elements corresponding to SRGs in the network. Sinha defines an SRG as "a group of links that will tend to fail collectively" (column 2, lines 51-52; emphasis added). Even if each link in the network belonged to its own SRG, no protection-link vector of Sinha would have any element corresponding to any node of the network and, therefore, would not have protection bandwidth information for any node. Consequently, it cannot be said that an individual protection-link vector of Sinha corresponds to an individual link information unit of the claimed network data structure.

(b)

Furthermore, an aggregation of protection-link vectors would not correspond to the recited network data structure. A network data structure may be represented as a two-dimensional L by (N+L-1) data array that includes information for all the links and nodes of a network. The only arguably-array-like aggregation of protection-link vectors taught in Sinha is the collection of protection-link vectors of a protection path. Since a given network having a protection path has a corresponding, different, and SRG-disjoint working path (*see, e.g.*, Sinha at column 3, line 60 – column 4, line 3, discussing discarding of potential protection links that are not SRG-distinct from the working path), the protection path will not contain the links of the

working path it protects. In other words, the protection path cannot consist of all the links and nodes of the given network since it cannot include the links of the corresponding working path. As a result, the aggregation of protection-link vectors for a protection path cannot consist of L link information units, where L is the number of links in the given network. Consequently, it cannot be said that an aggregation of protection-link vectors of a protection path of Sinha corresponds to the claimed network data structure.

Therefore, the Applicant submits that Sinha does not teach the above-quoted requisite element of claim 1.

Element (2)

The Examiner asserted that Sinha teaches determining, using the network and service data structures, whether the new service requires additional protection bandwidth to be reserved on any link in the network. Specifically, the Examiner cited Sinha, at column 3, lines 45-60, as allegedly disclosing "where it is determined the allocation of protection bandwidth of a new working path against the existing protection bandwidth." The Applicant submits that the cited section discloses a step where "new protection links are added to protect the defined working path" (emphasis added). The Applicant submits that adding new links is not the same as determining whether additional protection bandwidth is required to be reserved on a link of the network. Consequently, the Applicant submits that it cannot be said that Sinha teaches this requisite element of claim 1.

Element (3)

The Examiner asserted that Sinha teaches updating the network data structure if any additional protection bandwidth is determined to be required for the new service. Specifically, the Examiner cited various sections of Sinha as allegedly disclosing "where 'new protection links are added to protect the defined working path.'" The Applicant submits that the cited sections disclose nothing regarding updating of vectors, let alone of network data structures. Consequently, the Applicant submits that the rejection is improper and should be withdrawn.

In view of the foregoing, the Applicant submits that claim 1 is allowable over the cited references. For similar reasons, the Applicant submits that claim 17 is also allowable over the cited references. Since claims 2-16 and 21-24 depend variously from claim 1, and claims 18-20 depend variously from claim 17, it is further submitted that those claims are also allowable over the cited references.

Claim 7

In rejecting claim 7, the Examiner asserted that the proposed combination of Sinha and Walrand would disclose all the elements of claim 7, including that "each vector in the array has a plurality of entries corresponding to the nodes and links in the network." The Applicant submits that the proposed combination would not teach this element of claim 7.

The Examiner asserted that Sinha teaches this element at column 2, line 65 – column 3, line 26, allegedly disclosing "each link having a vector containing a plurality of vector elements." As noted above in reference to claim 1, Sinha does not teach a vector having vector elements corresponding to nodes of a network. As a result, it cannot be said that Sinha teaches a vector having a plurality of entries corresponding to the nodes and links in the network.

Therefore, the Applicant submits that the above provides further grounds for the allowability of claim 7 over the cited references. Similarly, it is further submitted that this also provides further grounds for the allowability of claims 21-23 over the cited references. Since claims 8-10 depend variously from claim 7 and claim 24 depends from claim 21, it is further submitted that this also provides further grounds for the allowability of those claims over the cited references.

Claims 12 and 16

The Applicant notes that, while the Examiner asserted that claim 12 recites "an incremental version of the network data structure," claim 12 actually recites "a compact version of the network data structure." Similarly, while the Examiner asserted that claim 16 recites "a compact version of the network data structure," claim 16 actually recites "an incremental version of the network data structure." The Applicant will regard the rejections as directed at the proper elements.

In rejecting claim 12, the Examiner asserted that the proposed combination of Sinha and Walrand would disclose all the elements of claim 12, including "a compact version of the network data structure." The Applicant submits that the cited references do not teach this feature.

The Examiner cited Sinha at column 2, lines 58-64, as specifically teaching this feature. The cited section discloses that one Sinha embodiment is designed to determine protection-path allocation to reduce designation of additional protection-path bandwidth. Neither the cited section nor any other section of Sinha discloses anything about a compact version of a network

data structure. Consequently, it cannot be said that the proposed combination would teach the above-quoted feature.

Therefore, the Applicant submits that this provides further grounds for the allowability of claim 12 over the cited references. For similar reasons, the Applicant also submits that this also provides further grounds for the allowability of claim 16. Since claims 13-15 depend from claim 12, it is further submitted that this also provide further grounds for the allowability of those claims over the cited references.

Claim 14

In rejecting claim 14, the Examiner asserted that the proposed combination of Sinha and Walrand would teach all the features of claim 14, including that "the compact representation is a node aggregate vector V_{na} wherein each element of V_{na} corresponds to a node in the network." The Applicant submits that the proposed combination would not teach this feature.

The Examiner cited Sinha at column 4, line 4 – column 5, line 9, as specifically allegedly teaching this feature. As noted above in reference to claim 1, Sinha does not teach any vector whose elements correspond to nodes in the network. However, the above-quoted feature requires that each element of the claimed vector correspond to a node in the network. Consequently, it cannot be said that the proposed combination teaches this feature of claim 14.

Therefore, the Applicant submits that this provides further grounds for the allowability of claim 14 over the cited references.

Claim 22

In rejecting claim 22, the Examiner asserted that claim 22 is essentially the same as claim 7 and rejected claim 22 using similar rational. The Applicant notes that claim 22 recites the feature of "a primary path vector having a plurality of entries corresponding to all the nodes and links in the network, wherein each entry of the primary path vector identifies whether the corresponding node or link is or is not part of the primary path for the new service" (emphasis added), which is not the same as claim 7. The Applicant submits that the proposed combination of Sinha and Walrand would not teach this feature of claim 22.

The Applicant submits that neither Sinha nor Walrand teaches a primary path vector having entries corresponding to all the nodes and links in the network, where each entry identifies whether the corresponding node or link is or is not part of the primary path. Sinha identifies paths by the path's nodes as in, for example, A-B-C-D-E (column 2, line 49). This

designation is not a vector that includes elements corresponding to all the nodes and links in the network (it excludes, for example, node F). Walrand does not appear to specify how paths are designated and, in any case, does not disclose a vector as claimed. Consequently, it cannot be said that the proposed combination would disclose the above-quoted feature.

Therefore, the Applicant submits that this provides further grounds for the allowability of claim 22 over the cited references. For similar reasons, the Applicant further submits that this also provides further grounds for the allowability of claim 24 over the cited references.

Claim 23

In rejecting claim 23, the Examiner asserted that claim 23 is essentially the same as claim 7 and rejected claim 23 using similar rationale. The Applicant notes that claim 23 recites the feature that "at least one entry of the primary path vector identifies that the corresponding node or link is not part of the primary path for the new service" (emphasis added), which is not the same as claim 7. The Applicant submits that the proposed combination of Sinha and Walrand would not teach this feature of claim 23.

The Applicant submits that neither Sinha nor Walrand teaches a primary path vector having at least one entry identifying that the corresponding node or link is not part of the primary path. As noted above, Sinha identifies paths by its nodes as in, for example, A-B-C-D-E (column 2, line 49). This designation does not have any entries identifying that the corresponding node or link is not part of the primary path. Similarly, Walrand does not disclose any vector having an entry identifying that the corresponding node or link is not part of the primary path. Consequently, it cannot be said that the proposed combination would disclose the above-quoted feature.

Therefore, the Applicant submits that this provides further grounds for the allowability of claim 23 over the cited references.

Conclusion

In view of the above remarks, the Applicant believes that the pending claims are in condition for allowance. Therefore, the Applicant believes that the entire application is now in condition for allowance, and early and favorable action is respectfully solicited.

Fees

During the pendency of this application, the Commissioner for Patents is hereby authorized to charge payment of any filing fees for presentation of extra claims under 37 CFR

1.16 and any patent application processing fees under 37 CFR 1.17 or credit any overpayment to **Mendelsohn, Drucker, & Associates, P.C. Deposit Account No. 50-0782.**

The Commissioner for Patents is hereby authorized to treat any concurrent or future reply, requiring a petition for extension of time under 37 CFR § 1.136 for its timely submission, as incorporating a petition for extension of time for the appropriate length of time if not submitted with the reply.

Respectfully submitted,

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